Patent Attorney's Docket No.: 42390.P4899C

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Patent Application of:	
Edward T. Grochowski et al.	Examiner: Not Yet Assigned
Application No.: Not Yet Assigned	Art Unit: Not Yet Assigned
Filed: October 9, 2001	
Title: METHOD AND APPARATUS FOR IMPROVED PREDICATE PREDICTION	

Assistant Commissioner of Patents
BOX Patent Application
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

Before examining the above-identified patent application, it is respectfully requested that the application be amended as follows and that the Examiner consider the following remarks

IN THE TITLE

Change the title to – METHOD AND APPARATUS FOR CONDITIONALLY EXECUTING A PREDICATED INSTRUCTION --.

IN THE SPECIFICATION

On page 2, line 4, insert – This is a continuation of patent application number 09/224,414, filed December 31, 1998. --.

IN THE CLAIMS

Please cancel claims 1-28.

A marked-up version of the claims, showing changes made, may be found in Appendix A, attached hereto. Below is a clean set of all pending claims, submitted under 37 C.F.R. §1.121(c)(3), incorporating any additions, cancellations, and amendments thereto. Please substitute these claims for pending claims of the same number.

29. (Newly Added) A method of executing a sequence of instructions comprising:

determining a predicted predicate value (PPV) for a predicate;

conditionally executing a predicated instruction depending on the PPV;

executing a COMPARE instruction to determine an actual predicate value (APV) for the predicate;

comparing the APV to the PPV; and

flushing a pipeline if the APV and the PPV are unequal.

30. (Newly Added) The method of claim 29, further comprising executing the predicated instruction after flushing the pipeline.

31. (Newly Added) The method of claim 29, wherein flushing the pipeline comprises flushing only a backend portion of the pipeline.

32. (Newly Added) The method of claim 29, further comprising updating historical information corresponding to the predicate in a predicate history table after comparing the APV to the PPV.

33. (Newly Added) The method of claim 29, wherein conditionally executing the predicated instruction includes executing the predicated instruction if the PPV is true.

34. (Newly Added) The method of claim 29, wherein conditionally executing the predicated instruction includes treating the predicated instruction like a no-op if the PPV is false.

35. (Newly Added) A processor comprising:

a predicate history table;

a register file; and

a predicted predicate value (PPV) calculator having a first input coupled to an output of the predicate history table and a second input coupled to an output of the register file.

36. (Newly Added) The processor of claim 35, further comprising:

a IP select circuit having an output coupled to the predicate history table;

a register select circuit having an output coupled to the register file; and

an instruction decoder having an output coupled to input of the IP select circuit and the register select circuit.

37. (Newly Added) The processor of claim 35, further comprising a pipeline having a PPV input coupled to an output of the register file and an actual predicate value (APV) output coupled to an input of the predicate history table.

38. (Newly Added) The processor of claim 37, further comprising an XOR gate having a first input coupled to the APV output of the pipeline, a second input coupled to an output of the register file, and an output coupled to a flush input of the pipeline.

39. (Newly Added) A processor comprising:

a predicate history table to store historical information associated with a predicate; and

a predicted predicate value (PPV) calculator to calculate a PPV.

40. (Newly Added) The processor of claim 39, further comprising a speculative predicate register file to store the PPV.

41. (Newly Added) The processor of claim 40, further comprising a pipeline to receive the PPV, and to conditionally execute a predicated instruction depending on the PPV.

42. (Newly Added) The processor of claim 39, further comprising a pipeline to receive the PPV, and to conditionally execute a predicated instruction depending on the PPV.

43. (Newly Added) The processor of claim 42, wherein the pipeline includes an actual predicate value output to provide an actual predicate value to the predicate history table.

44. (Newly Added) The processor of claim 39, wherein the calculator includes a selector to, based on a confidence level, select the PPV to be based on historical information.

45. (Newly Added) A system comprising:

memory to store a predicated instruction;

a bus to transfer the predicated instruction from the memory; and

a processor to receive the predicated instruction and to calculate a predicted predicate value (PPV) for the predicate.

46. (Newly Added) The system of claim 45, wherein the processor comprises a predicate history table to store historical information associated with the predicate.

47. (Newly Added) The system of claim 46, wherein the processor further comprises a pipeline to receive the PPV, and to conditionally execute the predicated instruction depending on the PPV.

48. (Newly Added) The system of claim 45, wherein the processor further comprises a pipeline to receive the PPV, and to conditionally execute the predicated instruction depending on the PPV.

49. (Newly Added) The system of claim 45, wherein the memory is main memory and the bus is a system bus.

50. (Newly Added) The system of claim 45, wherein the memory is external memory.

IN THE ABSTRACT

A marked-up version of the abstract, showing changes made, may be found in Appendix A, attached hereto. Following is a clean replacement abstract, incorporating any additions and deletions. Please delete the abstract, and replace with:

In one method, a predicted predicate value may be determined. A predicated instruction is then conditionally executed depending on the predicted predicate value. For example, in accordance with one embodiment of the present invention, a predicate table stores historical information corresponding to a predicate. A pipeline coupled to the table receives a predicted predicate value calculated from the historical information. The pipeline may use this predicted predicate value to conditionally execute a predicated instruction. The actual predicate value is provided back to the predicate table from the pipeline.

REMARKS

Claims 1-28 were submitted for examination. Applicants cancelled claims 1-28 and added new claims 29-50. Applicants respectfully submit that these amendments do not add new matter. Examination of the above-identified patent application as amended is respectfully requested.

Respectfully submitted,
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APPENDIX A

VERSION OF SPECIFICATION AND CLAIMS
WITH MARKINGS TO SHOW CHANGES MADE

IN THE TITLE

Change the title to – METHOD AND APPARATUS FOR CONDITIONALLY EXECUTING A PREDICATED INSTRUCTION --.

IN THE SPECIFICATION

On page 2, line 4, insert – This is a continuation of patent application number 09/224,414, filed December 31, 1998. --.

IN THE CLAIMS

Claims 1-28 are cancelled, so no marked-up version is shown for these claims.

Claims 29-50 are newly added, so no marked-up version is shown for these claims.

IN THE ABSTRACT

Delete the abstract and replace with the following:

--In one method, a predicted predicate value may be determined. A predicated instruction is then conditionally executed depending on the predicted predicate value. For example, in accordance with one embodiment of the present invention, a predicate table stores historical information corresponding to a predicate. A pipeline coupled to the table receives a predicted predicate value calculated from the historical information. The pipeline may use this predicted predicate value to conditionally execute a

predicated instruction. The actual predicate value is provided back to the predicate table from the pipeline. --